§ 17.54 Rated lamp voltage.

To insure the necessary lumen output by obstruction lights, the rated voltage of incandescent lamps used shall correspond to be within 3 percent higher than the voltage across the lamp socket during the normal hours of operation.

[42 FR 54826, Oct. 11, 1977]

§ 17.56 Maintenance of lighting equipment.

(a) Replacing or repairing of lights, automatic indicators or automatic control or alarm systems shall be accomplished as soon as practicable.

(b) The flash tubes in a high intensity obstruction lighting system shall be replaced whenever the peak effective daytime intensity falls below 200,000 candelas.

[40 FR 30267, July 18, 1975]

§ 17.57 Report of radio transmitting antenna construction, alteration, and/or removal.

The owner of an antenna structure for which an Antenna Structure Registration Number has been obtained must notify the Commission within 24 hours of completion of construction (FCC Form 854–R) and/or dismantlement (FCC Form 854). The owner must also immediately notify the Commission using FCC Form 854 upon any change in structure height or change in ownership information.

[61 FR 4364, Feb. 6, 1996]

§ 17.58 Facilities to be located on land under the jurisdiction of the U.S. Forest Service or the Bureau of Land Management.

Any application proposing new or modified transmitting facilities to be located on land under the jurisdiction of the U.S. Forest Service or the Bureau of Land Management shall include a statement that the facilities will be so located, and the applicant shall comply with the requirements of §1.70 of this chapter.

[32 FR 11274, Aug. 3, 1967]

PART 18—INDUSTRIAL, SCIENTIFIC, AND MEDICAL EQUIPMENT

Subpart A—General Information

Sec.

Subpart B—Applications and Authorizations

Subpart C—Technical Standards

AUTHORITY: 47 U.S.C. 4, 301, 302, 303, 304, 307.

SOURCE: 50 FR 36067, Sept. 5, 1985, unless otherwise noted.

Subpart A—General Information

§ 18.101 Basis and purpose.

The rules in this part, in accordance with the applicable treaties and agreements to which the United States is a party, are promulgated pursuant to section 302 of the Communications Act of 1934, as amended, vesting the Federal Communications Commission with authority to regulate industrial, scientific, and medical equipment (ISM) that emits electromagnetic energy on frequencies within the radio frequency spectrum in order to prevent harmful

interference to authorized radio communication services. This part sets forth the conditions under which the equipment in question may be operated.

§ 18.103 Organization and applicability of the rules.

The rules in this part are divided into the following subparts:

(a) Subpart A contains general information and definitions for use in this part.

(b) Subpart B describes the procedures and requirements for authorization to market or operate ISM equipment under this part.

(c) Subpart C contains the technical standards for ISM equipment.

§ 18.105 Other applicable rules.

Other Commission rule parts relating to the authorization and operation of ISM equipment include the following:

(a) Part 0 describes the Commission's organization and delegations of authority. This part also lists available Commission publications, standards and procedures for access to Commission records, and location of Commission field offices.

(b) Part 1 contains the rules of practice and procedure for adjudicatory proceedings including hearing proceedings; procedures for reconsideration and review of the Commission's actions; provisions concerning violation notices and for forfeiture proceedings; and the requirements for evironmental impact statements.

(c) Part 2 contains special requirements in international regulations, agreements, treaties, and the table of frequency allocations. This part also contains requirements and procedures concerning the marketing, the equipment authorization, and the importation of radio frequency devices into the United States.

§ 18.107 Definitions.

(a) *Radio frequency (RF) energy*. Electromagnetic energy at any frequency in the radio spectrum from 9 kHz to 3 THz (3,000 GHz).

(b) *Harmful interference.* Interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunication service operating in accordance with this chapter.

(c) *Industrial, scientific, and medical (ISM) equipment*. Equipment or appliances designed to generate and use locally RF energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of telecommunication. Typical ISM applications are the production of physical, biological, or chemical effects such as heating, ionization of gases, mechanical vibrations, hair removal and acceleration of charged particles.

(d) *Industrial heating equipment.* A category of ISM equipment used for or in connection with industrial heating operations utilized in a manufacturing or production process.

(e) *Medical diathermy equipment.* A category of ISM equipment used for therapeutic purposes, not including surgical diathermy apparatus designed for intermittent operation with low power.

(f) *Ultrasonic equipment.* A category of ISM equipment in which the RF energy is used to excite or drive an electromechanical transducer for the production of sonic or ultrasonic mechanical energy for industrial, scientific, medical or other noncommunication purposes.

(g) *Consumer ISM equipment.* A category of ISM equipment used or intended to be used by the general public in a residential environment, notwithstanding use in other areas. Examples are domestic microwave ovens, jewelry cleaners for home use, ultrasonic humidifiers.

(h) *ISM frequency*. A frequency assigned by this part for the use of ISM equipment. A specified tolerance is associated with each ISM frequency. See § 18.301.

(i) *Marketing.* As used in this part, marketing shall include sale or lease, offer for sale or lease, advertising for sale or lease, the import or shipment or other distribution for the purpose of sale or lease or offer for sale or lease. See subpart I of part 2 of this chapter.

(j) *Magnetic resonance equipment.* A category of ISM equipment in which RF energy is used to create images and data representing spatially resolved

density of transient atomic resources within an object.

NOTE: In the foregoing, sale (or lease) shall mean sale (or lease) to the user or a vendor who in turn sells (or leases) to the user. Sale shall not be construed to apply to devices sold to a second party for manufacture or fabrication into a device which is subsequently sold (or leased) to the user.

[50 FR 36067, Sept. 5, 1985, as amended at 59 FR 39472, Aug. 3, 1994]

§ 18.109 General technical requirements.

ISM equipment shall be designed and constructed in accordance with good engineering practice with sufficient shielding and filtering to provide adequate suppression of emissions on frequencies outside the frequency bands specified in § 18.301.

§ 18.111 General operating conditions.

(a) Persons operating ISM equipment shall not be deemed to have any vested or recognizable right to the continued use of any given frequency, by virtue of any prior equipment authorization and/or compliance with the applicable rules.

(b) Subject to the exceptions in paragraphs (c) and (d) of this section and irrespective of whether the equipment otherwise complies with the rules in this part, the operator of ISM equipment that causes harmful interference to any authorized radio service shall promptly take whatever steps may be necessary to eliminate the interference.

(c) The provisions of paragraph (b) of this section shall not apply in the case of interference to an authorized radio station or a radiocommunication device operating in an ISM frequency band.

(d) The provisions of paragraph (b) of this section shall not apply in the case of interference to a receiver arising from direct intermediate frequency pickup by the receiver of the fundamental frequency emissions of ISM equipment operating in an ISM frequency band and otherwise complying with the requirements of this part.

§ 18.113 Inspection by Commission representatives.

Upon request by a representative of the Commission the manufacturer, owner, or operator of any ISM equipment shall make the equipment available for inspection and promptly furnish the Commission with such information as may be required to indicate that the equipment complies with this part.

§ 18.115 Elimination and investigation of harmful interference.

(a) The operator of ISM equipment that causes harmful interference to radio services shall promptly take appropriate measures to correct the problem.

(b) If the operator of ISM equipment is notified by the Commission's Engineer in Charge (EIC) that operation of such equipment is endangering the functioning of a radionavigation or safety service, the operator shall immediately cease operating the equipment. Operation may be resumed on a temporary basis only for the purpose of eliminating the harmful interference. Operation may be resumed on a regular basis only after the harmful interference has been eliminated and approval from the EIC obtained.

(c) When notified by the EIC that a particular installation is causing harmful interference, the operator or manufacturer shall arrange for an engineer skilled in techniques of interference measurement and control to make an investigation to ensure that the harmful interference has been eliminated. The EIC may require the engineer making the investigation to furnish proof of his or her qualifications.

§ 18.117 Report of interference investigation.

(a) An interim report on investigations and corrective measures taken pursuant to § 18.115 of this part shall be filed with the EIC of the local FCC office within 30 days of notification of harmful interference. The final report shall be filed with the EIC within 60 days of notification.

(b) The date for filing the final report may be extended by the Engineer in

Charge when additional time is required to put into effect the corrective measures or to complete the investigation. The request for extension of time shall be accompanied by a progress report showing what has been accomplished to date.

§18.119 Importation.

ISM equipment shall be refused entry or withdrawal for consumption into the Customs territory of the United States, unless accompanied by a copy of FCC Form 740, in accordance with the provisions of subpart K, part 2 of this chapter.

§18.121 Exemptions.

Non-consumer ultrasonic equipment, and non-consumer magnetic resonance equipment, that is used for medical diagnostic and monitoring applications is subject only to the provisions of §§18.105, 18.109 through 18.119, 18.301 and 18.303 of this part.

[59 FR 39472, Aug. 3, 1994; 60 FR 47302, Sept. 12, 1995]

Subpart B—Applications and Authorizations

§18.201 Scope.

This subpart contains the procedures and requirements for authorization to market or operate ISM equipment under this part.

§18.203 Equipment authorization.

(a) Consumer ISM equipment, unless otherwise specified, shall be subject to certification prior to use or marketing. An application for certification shall be filed with the Commission on an FCC Form 731, pursuant to the relevant sections in part 2, subpart J of this chapter and shall also be accompanied by:

(1) A description of measurement facilities pursuant to §18.205 or reference to such information already on file with the Commission.

(2) A technical report pursuant to §§18.207 and 18.311.

NOTE: The Commission will accept applications for either type approval or certification until September 1, 1986, for consumer microwave ovens. After that date, only applications for certification will be accepted for filing.

(b) Consumer ultrasonic equipment generating less than 500 watts and operating below 90 kHz, and non-consumer ISM equipment shall be subject to verification, in accordance with the relevant sections of part 2, subpart J of this chapter.

(c) Grants of equipment authorization issued, as well as on-site certifications performed, before March 1, 1986, remain in effect and no further action is required.

§18.205 Description of measurement facilities.

(a) Any party filing a report of measurements with the Commission shall include in that report a description of the measurement facilities. If such a description is already on file with the Commission, it may be included by reference.

(b) The description shall include the following information:

(1) Location of test site.

(2) Physical description of the test site accompanied by photographs A4 (21 cm × 29.7 cm) or 8 × 10 inches (20.3 cm × 25.4 cm) in size. Photographs smaller than A4 (21 cm × 29.7 cm) or 8 × 10 inches (20.3 cm × 25.4 cm) will be acceptable if they are of sufficient clarity and mounted on A4 (21 cm × 29.7 cm) paper or paper 8 × 10 inches (20.3 cm × 25.4 cm).

(3) Scaled drawing showing the dimensions of the site, the physical layout of supporting structures and all structures within 5 times the distance between the measuring set and the device under test.

(4) Description of structures used to support the device being measured and the test instrumentation.

(5) List of measuring equipment used and information concerning the calibration of the measuring equipment, i.e., when the equipment was last calibrated and frequency of calibration.

(6) A statement indicating whether this facility is available to do measurement work for others on a contract basis.

(c) This information shall be kept current at all times. At least every three (3) years, the organization filing

the data shall advise that the data on file are current.

NOTE: OET Bulletin 55, ''Characteristics of Open Field Test Sites'', provides further guidance on open field test sites.

[50 FR 36069, Sept. 5, 1985, as amended at 51 FR 12616, Apr. 14, 1986; 58 FR 44894, Aug. 25, 1993]

§ 18.207 Technical report.

When required by the Commission a technical report shall include at least the following information:

(a) A description of the measurement facilities in accordance with § 18.205. If such a description is already on file with the Commission, it may be included by reference.

(b) A copy of the installation and operating instructions furnished to the user. A draft copy of such instructions may be submitted with the application, provided a copy of the actual document to be furnished to the user is submitted as soon as it is available, but no later than 60 days after the grant of the application.

(c) The full name and mailing address of the manufacturer of the device and/or applicant filing for the equipment authorization.

(d) The FCC Identifier, trade name(s), and/or model number(s) under which the equipment is or will be marketed.

(e) A statement of the rated technical parameters that includes:

(1) A block and schematic diagram of the circuitry.

(2) Nominal operating frequency.

(3) Maximum RF energy generated.

(4) Electrical power requirements of equipment.

(5) Any other pertinent operating characteristics.

(f) A report of measurements, including a list of the measuring equipment used, and a statement of the date when the measuring equipment was last calibrated and when the measurements were made. The frequency range that was investigated in obtaining the report of measurements shall be indicated. See also §§ 18.309 and 18.311.

§ 18.209 Identification of authorized equipment.

Each device for which a grant of equipment authorization is issued under this part shall be identified pursuant to the applicable provisions of subpart J of part 2 of this chapter. Changes in the identification of authorized equipment may be made pursuant to § 2.933 of part 2 of this chapter. FCC Identifiers as described in §§ 2.925 and 2.926 of this chapter shall not be used on equipment subject to verification.

§ 18.211 Multiple listing of equipment.

(a) When the same or essentially the same equipment will be marketed under more than one FCC Identifier, equipment authorization must be requested on an FCC Form 731 for each FCC Identifier.

(b) If equipment authorization for additional FCC Identifiers is requested in the initial application, a statement shall be included describing how these additional devices differ from the basic device which was measured and stating that the report of measurements submitted for the basic device applies also to the additional devices.

(c) If equipment authorization for additional FCC Identifiers is requested after a grant has been issued by the FCC for the basic device, the application may, in lieu of the report of measurements, be accompanied by a statement including:

(1) FCC Identifier of device for which measurements are on file with the FCC.

(2) Date when equipment authorization was granted for the device(s) listed under paragraph (c)(1) of this section and the file number of such grant.

(3) Description of the difference between the device listed under paragraph (c)(1) of this section and the additional device(s).

(4) A statement that the report of measurements filed for the device listed under paragraph (c)(1) of this section applies also to the additional device(s).

(5) Photographs pursuant to § 2.1033(c).

§ 18.213 Information to the user.

Information on the following matters shall be provided to the user in the instruction manual or on the packaging if an instruction manual is not provided for any type of ISM equipment:

(a) The interference potential of the device or system

(b) Maintenance of the system

(c) Simple measures that can be taken by the user to correct interference.

[50 FR 36069, Sept. 5, 1985, as amended at 51 FR 17970, May 16, 1986]

Subpart C—Technical Standards

§ 18.301 Operating frequencies.

ISM equipment may be operated on any frequency above 9 kHz except as indicated in § 18.303. The following frequency bands, in accordance with § 2.106 of the rules, are allocated for use by ISM equipment:

ISM frequency	Tolerance
6.78 MHz	±15.0 kHz
13.56 MHz	±7.0 kHz
27.12 MHz	±163.0 kHz
40.68 MHz	±20.0 kHz
915 MHz	±13.0 MHz
2,450 MHz	±50.0 MHz
5,800 MHz	±75.0 MHz
24,125 MHz	±125.0 MHz
61.25 GHz	±250.0 MHz
122.50 GHz	±500.0 MHz
245.00 GHz	±1.0 GHz

NOTE: The use of the 6.78 MHz ±15 kHz frequency band is subject to the conditions of footnote 524 of the Table of Allocations. See § 2.106.

§ 18.303 Prohibited frequency bands.

Operation of ISM equipment within the following safety, search and rescue frequency bands is prohibited: 490–510 kHz, 2170–2194 kHz, 8354–8374 kHz, 121.4–121.6 MHz, 156.7–156.9 MHz, and 242.8–243.2 MHz.

§ 18.305 Field strength limits.

(a) ISM equipment operating on a frequency specified in § 18.301 is permitted unlimited radiated energy in the band specified for that frequency.

(b) The field strength levels of emissions which lie outside the bands specified in § 18.301, unless otherwise indicated, shall not exceed the following:

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (uV/m)	Distance (meters)
Any type unless otherwise specified (miscellaneous).	Any ISM frequency	Below 500	25	300
		500 or more	25 √ power/500	[1]300
	Any non-ISM frequency	Below 500	15	300
		500 or more	15 √ power/500	[1]300
Industrial heaters and RF stabilized arc welders.	On or below 5,725 MHz	Any	10	1,600
	Above 5,725 MHz	Any	([2])	([2])
Medical diathermy	Any ISM frequency	Any	25	300
	Any non-ISM frequency	Any	15	300
Ultrasonic	Below 490 kHz	Below 500	2,400/F(kHz)	300
		500 or more	2,400/F(kHz) √ power/500	[3]300
	490 to 1,600 kHz	Any	24,000/F(kHz)	30
	Above 1,600 kHz	Any	15	30
Induction cooking ranges	Below 90 kHz	Any	1,500	[4]30
	On or above 90 kHz	Any	300	[4]30

[1] Field strength may not exceed 10 μV/m at 1600 meters. Consumer equipment operating below 1000 MHz is not permitted the increase in field strength otherwise permitted here for power over 500 watts.

[2] Reduced to the greatest extent possible.

[3] Field strength may not exceed 10 μV/m at 1600 meters. Consumer equipment is not permitted the increase in field strength otherwise permitted here for over 500 watts.

[4] Induction cooking ranges manufactured prior to February 1, 1980, shall be subject to the field strength limits for miscellaneous ISM equipment.

(c) The field strength limits for RF lighting devices shall be the following:

Frequency (MHz)	Field strength limit at 30 meters (μV/m)
Non-consumer equipment:	
30–88	30
88–216	50
216–1000	70
Consumer equipment:	
30–88	10
88–216	15

Frequency (MHz)	Field strength limit at 30 meters (μV/m)
216–1000	20

NOTES

1. The tighter limit shall apply at the boundary between two frequency ranges.

2. Testing for compliance with these limits may be made at closer distances, provided a sufficient number of measurements are taken to plot the radiation pattern, to determine the major lobes of radiation, and to determine the expected field strength level at 30, 300, or 1600 meters. Alternatively, if measurements are made at only one closer fixed distance, then the permissible field strength limits shall be adjusted using 1/d as an attenuation factor.

[50 FR 36070, Sept. 5, 1985, as amended at 51 FR 17970, May 16, 1986; 52 FR 43197, Nov. 10, 1987]

§ 18.307 Conduction limits.

For the following equipment, which is designed to be connected to a low voltage public utility power line, the RF voltage conducted back into the power lines measured with a line impedance stabilization network (LISN) shall be limited to:

(a) Ultrasonic equipment:

Frequency (MHz)	Maximum RF line voltage measured with a 5 μH/50 ohm LISN (μV)
0.010–0.49	1000
0.49–30	200

(b) Induction cooking ranges manufactured after February 1, 1980:

Frequency (MHz)	Maximum RF line voltage measured with a 5μH/50 ohm LISN (mV)
0.010–0.1	10–1 (linear interpolation)
0.1–0.5	1
0.5–30	0.25

(c) RF lighting devices:

Frequency (MHz)	Maximum RF line voltage measured with a 50μH/50 ohm LISN (μV)
Non-consumer equipment:	
0.45 to 1.6	1000
1.6 to 30	3000
Consumer equipment:	
0.45 to 30	250

NOTES

1. These conduction limits shall apply outside the bands specified in § 18.301.

2. For ultrasonic equipment, compliance with these conduction limits shall preclude the need to show compliance with the field strength limits below 30 MHz unless requested by the Commission.

3. The tighter limits shall apply at the boundary between two frequency ranges.

[50 FR 36067, Sept. 5, 1985, as amended at 52 FR 43198, Nov. 10, 1987]

§ 18.309 Frequency range of measurements.

(a) For field strength measurements:

Frequency band in which device operates (MHz)	Range of frequency measurements	
	Lowest frequency	Highest frequency
Below 1.705	Lowest frequency generated in the device, but not lower than 9 kHz.	30 MHz.
1.705 to 30	Lowest frequency generated in the device, but not lower than 9 kHz.	400 MHz.
30 to 500	Lowest frequency generated in the device or 25 MHz, whichever is lower.	Tenth harmonic or 1,000 MHz, whichever is higher.
500 to 1,000	Lowest frequency generated in the device or 100 MHz, whichever is lower.	Tenth harmonic.
Above 1,000	.....do	Tenth harmonic or highest detectable emission.

(b) For conducted powerline measurements, the frequency range over which the limits are specified will be scanned.

[50 FR 36070, Sept. 5, 1985, as amended at 51 FR 17971, May 16 1986]

§ 18.311 Methods of measurements.

The measurement techniques which will be used by the FCC to determine compliance with the technical requirements of this part are set out in FCC

Measurement Procedure MP–5, ''Methods of Measurements of Radio Noise Emissions from ISM equipment''. Although the procedures in MP–5 are not mandated, manufacturers are encouraged to follow the same techniques which will be used by the FCC.

PART 19—EMPLOYEE RESPONSIBILITIES AND CONDUCT

Subpart A—General Provisions

Sec.

Subpart B—Ethical and Other Conduct and Responsibilities of Employees

Subpart C—Ethical and Other Conduct and Responsibilities of Special Government Employees

Subpart D—Statements of Employment and Financial Interests

Subpart E—Financial Reporting Requirements of the Ethics in Government Act

AUTHORITY: E.O. 11222, 3 CFR, 1965 Comp., 5 CFR 735.104, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes to part 19 appear at 45 FR 39850, June 12, 1980.

Subpart A—General Provisions

§ 19.735–101 Purpose.

The effectiveness of the Commission in serving the public interest depends upon the extent to which the Commission holds the confidence and esteem of the Nation's citizens. To hold the public confidence, unusually high standards of honesty, integrity, impartiality, and conduct must be maintained within the Commission and all officers and employees must not only obey the literal requirements of the Federal laws and orders governing official conduct, but also show by their conduct that they support the ethical principles which underlie these laws and regulations. The avoidance of misconduct and conflicts of interest on the part of Commission employees through informed judgment is indispensable to the maintenance of these standards. In accordance with these concepts, this part sets forth the Commission's regulations prescribing standards of conduct and responsibilities and governing